# MATERIAL SAFETY DATA SHEET

UNION CARBIDE

*An explanation of the terms used herein may be found in OSHA 29 CFR 1910.1200, available from OSHA regional or area offices.*
**(Essentially similar to U.S. Department of Labor Form OSHA-20 and generally accepted in Canada for information purposes)**
**Do Not Duplicate This Form. Request an Original.**

DPM 150-1

## I. PRODUCT IDENTIFICATION

| | |
|---|---|
| **PRODUCT** | Argon (Cryogenic Liquid) |
| **CHEMICAL NAME** | Argon |
| **FORMULA** | Ar |
| **SYNONYMS** | Not applicable |
| **CHEMICAL FAMILY** | Rare gas |
| **MOLECULAR WEIGHT** | 39.948 |
| **TRADE NAME** | Liquid Argon |

## II. HAZARDOUS INGREDIENTS

For mixtures of this product request the respective component Material Data Safety Sheets. See Section IX.

| MATERIAL (CAS NO.) | Wt (%) | 1984-1985 ACGIH TLV-TWA (OSHA-PEL) |
|---|---|---|
| Argon (7440-37-1) | 100 | Simple asphyxiant (None currently established) |



## III. PHYSICAL DATA

| | | | |
|---|---|---|---|
| **BOILING POINT, 760 mm. Hg** | −185.9°C (−302.6°F) | **FREEZING POINT** | −189.2°C (−308.6°F) |
| **SPECIFIC GRAVITY ($H_2O$ = 1)** | 1.40 @ −185.9°C | **VAPOR PRESSURE AT 20°C.** | Gas |
| **VAPOR DENSITY (air = 1)** | 1.378 @ 21.1°C (70°F) | **SOLUBILITY IN WATER, % by wt.** | Negligible |
| **PERCENT VOLATILES BY VOLUME** | 100 | **EVAPORATION RATE (Butyl Acetate = 1)** | High |

**APPEARANCE AND ODOR** Colorless, odorless cryogenic liquid.

## EMERGENCY PHONE NUMBER

IN CASE OF EMERGENCIES involving this material, further information is available at all times:
In the USA 304 — 744-3487 In Canada 514 — 645-5311
For routine information contact your local supplier

Union Carbide requests the users of this product to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product a user should (1) notify its employees, agents and contractors of the information on this MSDS and any product hazards and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the same product hazards and safety information.

**UNION CARBIDE CORPORATION ☐ LINDE DIVISION**
**UNION CARBIDE CANADA LIMITED ☐ LINDE DIVISION**





L-4564-B

BOE-C6-0208283

## IV. HEALTH HAZARD DATA

**THRESHOLD LIMIT VALUE:** Simple asphyxiant – ACGIH (1984–1985)

**EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:**

**SWALLOWING** — An unlikely route of exposure, but frostbite of the lips and mouth may result from contact with the liquid.

**SKIN ABSORPTION** — No evidence of adverse effects from available information.

**INHALATION** — Asphyxiant. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness.

**SKIN CONTACT** — No harmful effect expected from vapor. Liquid may cause frostbite.

**EYE CONTACT** — No harmful effect expected from vapor. Liquid may cause frostbite.

**EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:** No evidence of adverse effects from available information.

**OTHER EFFECTS OF OVEREXPOSURE:** Argon is an asphyxiant. Lack of oxygen can cause death.

**MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:** A knowledge of the available toxicology information and of the physical and chemical properties of the material suggest that overexposure is unlikely to aggravate existing medical conditions.

**SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:** None currently known.

**EMERGENCY AND FIRST AID PROCEDURES:**

**SWALLOWING** — This product is a gas at normal temperature and pressure.

**SKIN CONTACT** — For exposure to liquid, immediately warm frostbite area with warm water (not to exceed 105°F). In case of massive exposure, remove clothing while showering with warm water. Call a physician.

**INHALATION** — Remove to fresh air. Give artificial respiration if not breathing. Give oxygen if breathing is difficult. Call a physician.

**EYE CONTACT** — In case of splash contamination, immediately flush eyes thoroughly with water for at least 15 minutes. See a physician, preferably an ophthalmologist, immediately.

***NOTE TO PHYSICIAN:*** *This product is inert. There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition.*

## V. FIRE AND EXPLOSION HAZARD DATA

| | | | |
|---|---|---|---|
| **FLASH POINT (test method)** | Not applicable | **AUTOIGNITION TEMPERATURE** | Not applicable |
| **FLAMMABLE LIMITS IN AIR, % by volume** | **LOWER** Not applicable | **UPPER** | Not applicable |

**EXTINGUISHING MEDIA:** Argon cannot catch fire. Use media appropriate for surrounding fire.

**SPECIAL FIRE FIGHTING PROCEDURES:** Evacuate all personnel from danger area. Immediately deluge containers with water spray from maximum distance until cool, then move containers away from fire area if without risk.

Do not discharge sprays into liquid Argon.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Liquid or vapor cannot catch fire. Closed container may rupture due to heat of fire. Liquid Argon will freeze water rapidly. Containers are provided with a pressure relief device designed to vent contents when they are exposed to elevated temperature.

## VI. REACTIVITY DATA

| STABILITY | |
|---|---|
| **UNSTABLE** | **STABLE** |
| | X |

**CONDITIONS TO AVOID:** Heat (See Section IX).

**INCOMPATIBILITY (materials to avoid):** None currently known. Argon is chemically inert.

**HAZARDOUS DECOMPOSITION PRODUCTS:** None.

| HAZARDOUS POLYMERIZATION | |
|---|---|
| **May Occur** | **Will not Occur** |
| | X |

**CONDITIONS TO AVOID:** None currently known.

## VII. SPILL OR LEAK PROCEDURES

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED**

**CAUTION:** Argon gas is an asphyxiant. Evacuate all personnel from danger area. Allow spilled liquid to evaporate. Shut off leak if without risk. Move leaking assembly to ventilated area or ventilate area of leak. Use self-contained breathing apparatus where needed. Test area, especially confined areas, for sufficient oxygen content prior to permitting re-entry of personnel.

**WASTE DISPOSAL METHOD:** Slowly release into atmosphere outdoors.

## VIII. SPECIAL PROTECTION INFORMATION

**RESPIRATORY PROTECTION (specify type):** Select in accordance with OSHA 29 CFR 1910.134. Respirators shall be acceptable to MSHA and NIOSH.

| | |
|---|---|
| **VENTILATION** | **LOCAL EXHAUST** — Preferred |
| | **MECHANICAL (general)** — Acceptable |
| | **SPECIAL** — Not applicable |
| | **OTHER** — Not applicable |

**PROTECTIVE GLOVES:** Loose-fitting cryogenic gloves

**EYE PROTECTION:** Select in accordance with OSHA 29 CFR 1910.133

**OTHER PROTECTIVE EQUIPMENT:** Metatarsal shoes for cylinder handling. Protective clothing where needed. Cuffless trousers should be worn outside the shoes. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133.

## IX. SPECIAL PRECAUTIONS

**WARNING:** Extremely cold liquid and gas. Contact with liquid or cold gas causes severe frostbite. Vapor can cause rapid suffocation due to oxygen deficiency. Protect containers against physical damage. Store and use with adequate ventilation. Close valve when not in use and when empty. Use piping and equipment adequately designed to withstand pressures and temperatures to be encountered. Do not get liquid in eyes, on skin or clothing. Do not strike arc on container. Do not ground container.

**MIXTURES:** When two or more gases, or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist, or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death. Be sure to read and understand all labels and other instructions supplied with all containers of this product.

*NOTE: Compatibility with plastics should be confirmed prior to use. For safety information on general handling of compressed gas cylinders, obtain a copy of pamphlet P-1, "Safe Handling of Compressed Gas Cylinders", pamphlet P-12, "Safe Handling of Cryogenic Liquids", and pamphlet P-9, "The Inert Gases, Argon, Nitrogen, and Helium", from the Compressed Gas Association, Inc., 1235 Jefferson Davis Highway, Arlington, VA 22202.*

**OTHER HANDLING AND STORAGE CONDITIONS:** Never work on a pressurized system. If there is a leak, close the cylinder valve, blow down the system by venting to a safe place, then repair the leak.




**GENERAL OFFICES**

IN THE USA:
Union Carbide Corporation
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39 Old Ridgebury Road
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Union Carbide Canada Limited
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Other offices in principal cities all over the world.



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